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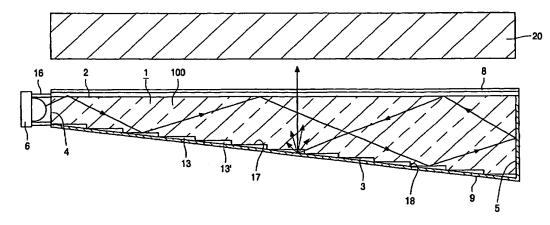
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(54) Title: COMPACT LIGHTING SYSTEM AND DISPLAY DEVICE



(57) Abstract: A compact backlight system has a light-emitting panel (1) with a front wall (2), a rear wall (3) situated opposite thereto, and furthermore, between the front and the rear wall (2, 3), a first edge surface (4) and, opposite thereto, a second edge surface (5). A first light source (6) is associated with the first edge surface (4) which is light-transmitting. According to the invention, the light-emitting panel (1) widens over a widening section (100) from the first edge surface (4) in a direction towards the second edge surface (5), and the rear wall (3) is provided over the widening section (100) with a multiplicity of steps (13, 13', ...) of which a surface (17) facing the front wall (2) is substantially parallel to the front wall (2). Preferably, the ratio of the surface area S1 of the first edge surface (4) and the surface area  $S_2$  of the second edge surface (5) ranges from  $1.5 < S_2/S_1 < 3$ .

CLASSIFICATION OF SUBJECT MATTER
PC 7 G02B6/00 F21V5/02 IPC 7 G09F13/18 According to International Patent Classification (IPC) or to both national classification and IPC **B. FIELDS SEARCHED** Minimum documentation searched (classification system followed by classification symbols) GO2B G09F IPC 7 F21V Documentation searched other than minimum documentation to the extent that such documents are included in the fletds searched Electronic data base consulted during the international search (name of data base and, where practical, search terms used) EPO-Internal, WPI Data, PAJ C. DOCUMENTS CONSIDERED TO BE RELEVANT Relevant to claim No. Citation of document, with indication, where appropriate, of the relevant passages Category ° 1 - 16US 5 359 691 A (TAI CHEN-YU Α 25 October 1994 (1994-10-25) abstract column 1, line 15 -column 1, line 20 column 1, line 45 -column 1, line 48 column 4, line 45 -column 5, line 32 column 10, line 20 -column 10, line 48 column 11, line 4 -column 11, line 30 column 12, line 21 -column 12, line 35 column 13, line 1 -column 13, line 15 figures 1-16 1-16 US 5 854 872 A (TAI CHEN-YU) Α 29 December 1998 (1998-12-29) abstract figures 1,2,9 Further documents are listed in the continuation of box C. X Patent family members are listed in annex. Special categories of cited documents: \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the "A" document defining the general state of the art which is not considered to be of particular retevance invention "E" earlier document but published on or after the international "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such docu-"O" document referring to an oral disclosure, use, exhibition or ments, such combination being obvious to a person skilled other means document published prior to the international filing date but later than the priority date claimed "&" document member of the same patent family Date of mailing of the international search report Date of the actual completion of the international search 14/08/2003 1 August 2003 Authorized officer Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31–70) 340–2040, Tx. 31 651 epo nl, Fax: (+31–70) 340–3016 Bagge Af Berga, H

# INTERNATIONAL SEARCH REPORT

Application No
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Patent document cited in search report		Publication date		Patent family member(s)	Publication date
US 5359691	A	25-10-1994	US CN JP JP WO EP JP	5390276 A 1121371 A ,B 3059883 B2 6324217 A 9424589 A1 0672263 A1 6202107 A 9409395 A1	14-02-1995 24-04-1996 04-07-2000 25-11-1994 27-10-1994 20-09-1995 22-07-1994 28-04-1994
US 5854872	Α	29-12-1998	CN EP JP WO	1238045 A 1012647 A1 2001502072 T 9815862 A1	08-12-1999 28-06-2000 13-02-2001 16-04-1998

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